

Redescription of *Neotogaria saitonis* MATSUMURA, 1931,
with Brief Notes on Its Relatives
(Lepidoptera, Thyatiridae)

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Neotogaria saitonis MATSUMURA, 1931, is a very characteristic thyatirid described from Taiwan. Since MATSUMURA's original description (1931) and redescription (1933), no subsequent record on this species seems to have appeared in the entomological literature. Recently, I have examined a male specimen of this interesting species. In this paper, I will redescribe the species, with a redescription of the genus *Neotogaria*. On this occasion, some continental thyatirids will be transferred to this genus, based on the examination of the photographs of their type specimens deposited in the British Museum (Natural History), London.

Genus *Neotogaria* MATSUMURA, 1933

Neotogaria MATSUMURA, 1933, Insecta matsum. 7: 195. Type-species: *Neotogaria saitonis* MATSUMURA, 1931, by original designation.

Neotogaria MATSUMURA, 1931, 6000 illust. Insects Japan-Empire: 672 [unavailable].

Consisting of medium to somewhat large sized moths, with the expanse of about 40-50 mm.

Antenna lamellate in male; head with a prominent tuft on vertex and an inverse V-shaped and hood-like tuft which covers a conical one of frons; eye naked; palpus with second segment roughly scaled and third one short and smooth; thoracic crest small; abdomen with dorsal crests on 3rd to 6th segments.

Wing shape and venation (Fig. 5). Forewing narrowed, with its termen crenulate between veins; vein 4 (M_3) from above lower angle of cell; veins 6 (M_1) and 7 (R_5) separated at base; stalk of veins 8 (R_4) and 9 (R_3) long, touching vein 7 (R_5) and forming a long areole together with the stalk of vein 10 (R_2). Hindwing with crenulate termen, with its cell shortened; veins 3 (CuA_1) and 4 (M_3) from lower angle of cell; vein 5 (M_2) from the lower one-third of cross vein; vein 8 ($Sc + R_1$) waved, coming close to vein 7 (R_s) beyond cell.

Male genitalia. Uncus very stout and long, strongly curved ventrad; socius of a simple tubular form very short, straightly projecting caudally; tegumen narrow in lateral view, the conjunctive area with uncus shallowly hollowed; anellus weakly sclerotized, long, plate-like; valva simple and weak, without inner apparatus, and elongated apically; sacculus with or without a small process; aedeagus with a weak and usually tapered caudal process; vesica granulated, without spinous cornutus.

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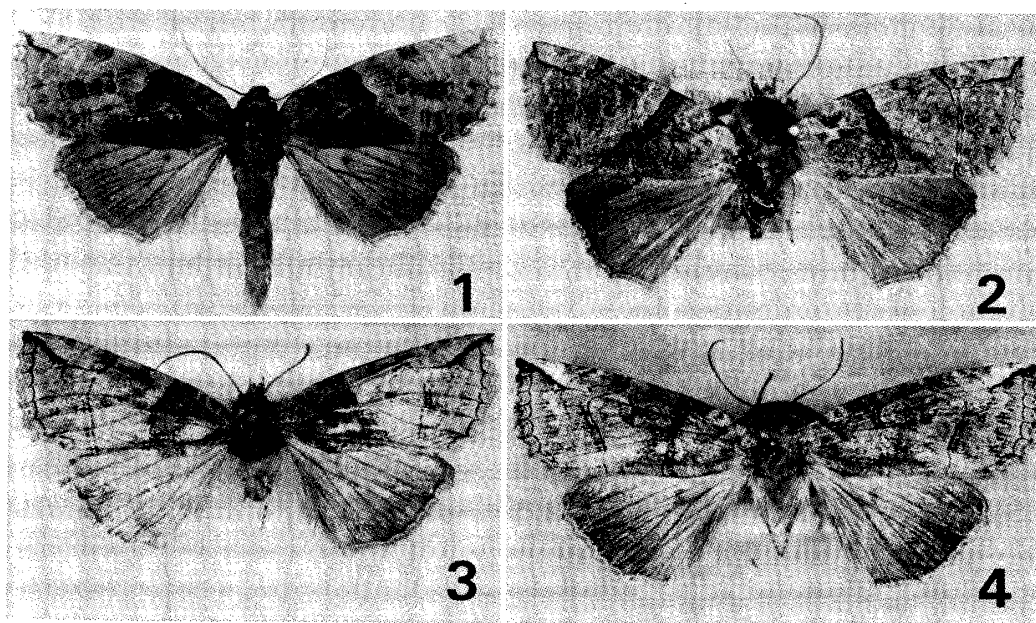
Female genitalia. Not yet studied.

Distribution. NE. India, S. China and Taiwan.

Remarks. This genus contains five or six species mainly in the temperate zone of the continent of southeast Asia from NE. India to S. China, one being distributed in Taiwan.

The moths of this genus have the forewing with its basal area widely and heavily darkened, so that some species were formerly assigned to the genus *Spilobasis* HOULBERT, 1921 (a junior objective synonym of *Mimopsestis* MATSUMURA, 1921). MELL (1942) investigated some south Chinese species of *Spilobasis* and recognized two distinct types in the structures of male genitalia among them. He described one of the types as follows: a caudal process of aedeagus is small and not so sclerotized; the difference between uncus and socius is slight and the latter is distinctly shorter. This description quite agrees with the male genitalia of *Neotogaria*.

In wing shape and male genitalia, *Neotogaria* is rather similar to *Tethea*, but is different from it in having the hood-like frontal tuft covering on a conical one and a long series of dorsal crests on abdomen. Its taxonomic position within the family seems not to be placed in the tribe Tetheini, but in Eupariphasmini proposed by WERNY (1966) under the name Lithocharini, on account of the male genitalia. *Neotogaria* largely shares the following characters with members of the genera *Euparyphasma* FLETCHER, 1979 (= *Lithocharis* WARREN, 1912)*, and *Chaeopsestis* LE CERF, 1941**:



Figs. 1-4. *Neotogaria* spp. 1: *N. saitonis* MATSUMURA, ♂. 2: *N. galema* (SWINHOE), holotype ♂. 3: *N. flammifera* (HOULBERT), holotype ♂. 4: *N. anguligera* (HAMPSON), holotype ♂.

* For the male genitalia of *E. albibasis* (HAMPSON, [1893]), type-species of the genus, see FORBES (1936: 784, pl. 1, fig. 2).

** I studied the photograph of male genitalia of *C. ludovicae* LE CERF, type-species, through the courtesy of Dr. P. VIETTE of Museum National d'Histoire Naturelle, Paris.

stout and much elongated uncus, very short socius, and simple valva with undeveloped sacculus. But, the studies of female genitalia are needed to clarify its true taxonomic position.

Appearance season of moths is not fully known, but most of the species seem to be univoltine, either in early spring or in late autumn, except *Spilobasis hoenei* SICK, 1941, probably a member of *Neotogaria*, of which adult specimens were captured both in early spring and in late autumn.

Neotogaria saitonis MATSUMURA, 1931

(Fig. 1)

Neotogaria saitonis MATSUMURA, 1931, 6000 illust. Insects Japan-Empire; 672, no. 313 (fig.); MATSUMURA, 1933, Insecta matsum. 7: 195, pl. 4, fig. 20; MATSUMURA, 1933a*, Insecta matsum. 8: 97.

♂. Antenna pale yellowish brown, basal one-fifth dark; head grayish brown, tuft on vertex edged with blackish and mixed with black below; a frontal hood-like tuft dark blackish brown at side and a conical tuft darker; second segment of palpus with black lateral line at outside, fringed roughly with pale ochreous scales; patagium grayish brown; tegula and thoracic crest pale gray; abdomen pale grayish brown, with black dorsal crests on 3rd to 6th segments, among which that on 3rd segment is largest. Forewing a little narrow; pale grayish with dark blackish brown ante- and post-median lines, suffused with dark grayish brown before antemedian line, which is double, the inner line gently arched from costa to hind margin, and the outer line angled below median nervure, incurved in and below cell; orbicular almost obsolete and reniform dully

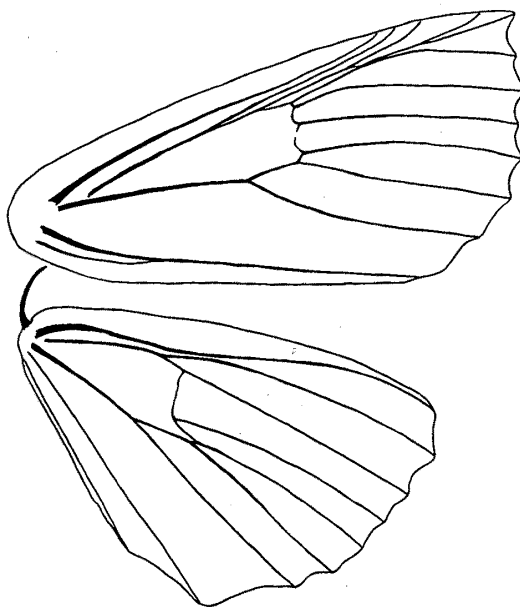


Fig. 5. Venation of *Neotogaria saitonis* MATSUMURA.

* In his key to genera, *Neotogaria* was unintentionally omitted.

stained with grayish brown at discocellular; a dark waved hue on subcosta above orbicular and an irregularly waved median line from just beyond reniform to hind margin; postmedian line double, running much obliquely from costa to vein 4, then nearly straightly and interruptedly to hind margin, filled-in with dark grayish brown in subcosta and cellule 3; a pale waved line between postmedian line and subterminal line from vein 6 to hind margin, outside edged by a thin dark line from costa to vein 3; subterminal line pale, waved, with dark grayish brown dots on and around veins 2, 3, and 4; terminal line thin, blackish, arched in each cellule; an angled black streak from apex thick, a little beyond the subterminal line; cilia pale grayish ochreous with paler basal line, mixed with blackish scales at tip and beyond each vein. Hindwing pale grayish, paler in inner two-thirds; cilia as in forewing, more roughly mixed with blackish scales. Underside. Forewing pale gray, with slightly ochreous tint, darker in submarginal area, with termen edged with black, a triangular black marking with a whitish dot on subterminal area of subcosta; cilia nearly as on upperside, somewhat darker. Hindwing pale gray and darker in outer area, with dark discoidal spot; cilia as in upperside.

Length of forewing. 20 mm (expanse 43 mm).

Male genitalia (Fig. 6). Uncus long and stout, socius rather thick; valva weak, with its ventral margin waved; sacculus not developed; saccus with its bottom flattened; aedeagus with a thin caudal process; vesica granulated widely near base and narrowly beyond middle.

Specimen examined. 1 ♂, Taiwan, Taichung, Lishan (2,000 m), March 4, 1980, T. TANABE leg.

Distribution. Taiwan.

Remarks. This species has hitherto been recorded from Baibara [=Meiyuan], a type-locality, and Horisha [=Puli] (MATSUMURA, 1931, 1933), and is considered to be limited to the central mountainous zone of Taiwan. Moths fly in quite early spring.

Neotogaria galema (SWINHOE, 1894), **comb. nov.**

(Fig. 2)

Polyplocia galema SWINHOE, 1894, Ann. Mag. nat. Hist. (6) 14: 431; HAMPSON, 1896, Fn. Brit. India (Moths) 4: 463; DALLA TORRE, 1921, in JUNK, Lep. Cat. (25): 30; GAEDE, 1930, in SEITZ, Gross-Schmett. Erde 10: 662.

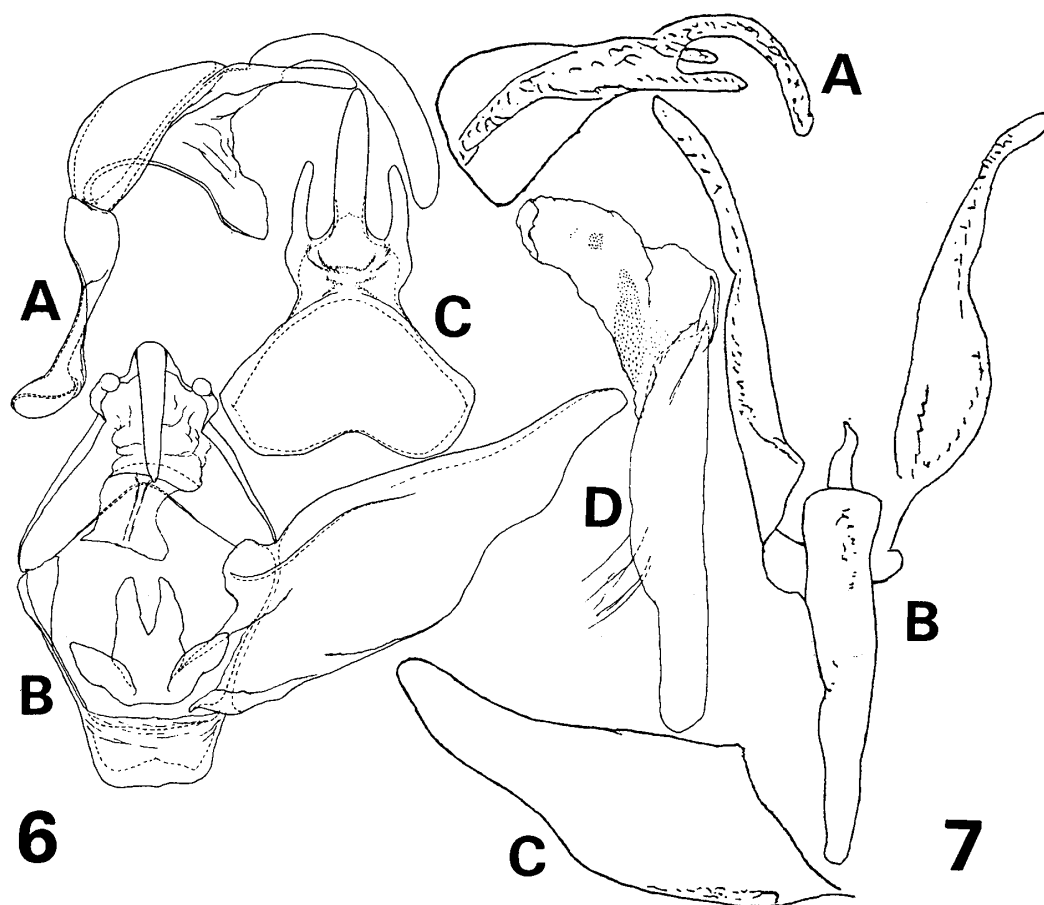
Photographs of the holotype moth and its genitalia examined.

Expanse. 42 mm.

Male genitalia (Fig. 8). Tegumen wide; socius thinner and its base a little shorter than in *N. saitonis*; valva with a minute process at sacculus; saccus wide W-shaped; aedeagus with its caudal process blunt; vesica granulated.

Distribution. NE. India (Assam).

Remarks. This species is closely related to *N. saitonis*, but is distinguished from the latter as follows: forewing broader; antemedian line more oblique to hind margin and postmedian line less oblique in costal half than in *N. saitonis*; apical streak thinner and more deeply penetrating inside than in *N. saitonis*; terminal line broken near hind angle.



Figs. 6-7. Male genitalia of *Neotogaria* spp. 6: *N. saitonis* MATSUMURA (A, Lateral view; B, Caudal view; C, Dorsal view of tegumen and uncus; D, Aedeagus). 7: *N. curvata* (SICK) (A, Tegumen and uncus; B, Aedeagus with valvae in ventral view; C, Left valva), after MELL (1942).

Neotogaria flammifera (HOULBERT, 1921), **comb. nov.**

(Fig. 3)

Spilobasis flammifera HOULBERT, 1921, in OBERTHÜR, Études Lép. comp. 18 (2): 154, pl. 488, fig. 4012; SEITZ, 1933, in SEITZ, Gross-Schmett. Erde 2 (suppl.): 191.

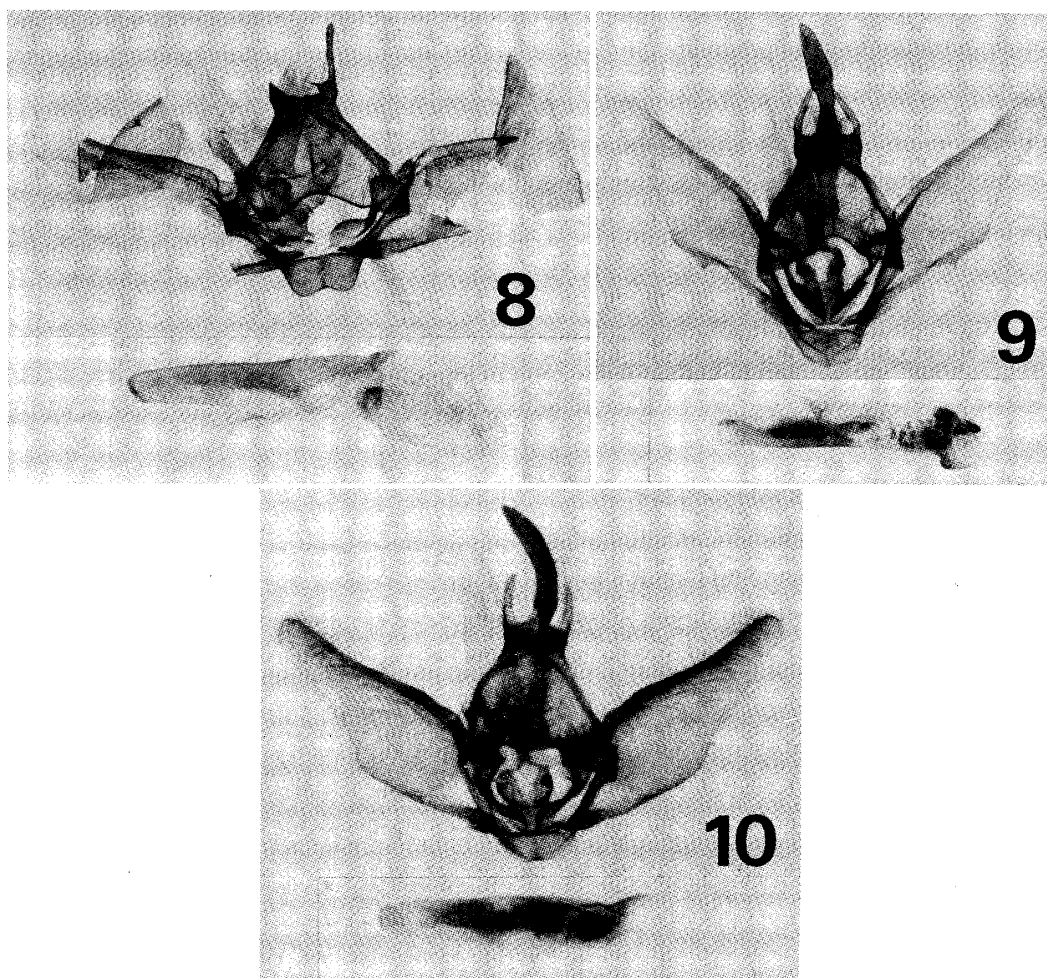
Photographs of the holotype moth and its genitalia examined.

Expanse. 47 mm.

Male genitalia (Fig. 10). Uncus stout and long, socius much short, with its base not so constricted in dorsal view as in *N. saitonis*; valva with no process on sacculus; juxta somewhat wider and deeply cleft; saccus with its bottom roundish; aedeagus with a caudal process thick and tapered at tip.

Distribution. S. China (Yunnan).

Remarks. This species is also related to *N. saitonis* and *N. galema*, but is separated from the latter two by the forewing with thick and straight apical streak, which reaches postmedian line along vein 6.



Figs. 8–10. Male genitalia of *Neotogaria* spp. 8: *N. galema* (SWINHÖE), holotype. 9: *N. anguligera* (HAMPSON), holotype. 10: *N. flammifera* (HOULBERT), holotype.

Neotogaria anguligera (HAMPSON, [1893]), **comb. nov.**

(Fig. 4)

Polyploca anguligera HAMPSON, [1893], Fn. Brit. India (Moths) 1: 183.

Palimpsestis anguligera: GAEDE, 1930, in SEITZ, Gross-Schmett. Erde 10: 661.

Photographs of the holotype moth and its genitalia examined.

Expanse. 39 mm.

Male genitalia (Fig. 9). Valva with its ventral margin gently protruded just beyond sacculus, then smooth and nearly parallel to costa; sacculus with a small process; saccus with its bottom wide U-shaped; caudal process of aedeagus thick, strongly angled and acutely tapered at tip.

Distribution. E. India (Naga Hill).

Remarks. This species resembles *N. flammifera* in having straight apical streak on forewing, but it is different from the latter in the shape of postmedian line, which is strongly angulate beyond reniform in *N. anguligera*.

Neotogaria curvata (SICK, 1941), **comb. nov.**

Spilobasis curvata SICK, 1941, Dt. entom. Z. **1941**: 8; MELL, 1942, Arch. Naturgesch. (N.F.) **11**: 300, fig. 2 (1-3) (male genitalia!).

Male genitalia (Fig. 7). According to the figures and description given by MELL, 1942. Uncus stout and long, socius much short; valva rather short, with no process on sacculus; a caudal process of aedeagus weak.

Distribution. S. China (Chekiang, Fukien, Hunan, Kuangtung).

Remarks. Among the continental members of the genus, this species inhabits S. China, eastwards to the provinces nearest to Taiwan where *N. saitonis* is distributed. According to the original description, this species is characterized by the combination of the following characters of the forewing: the antemedian line is strongly curved; the apical streak deeply penetrates inside beyond postmedian line.

SICK (1941) described further two species of *Spilobasis* from S. China: *S. hoenei* from Yunnan and *S. minor* from Chekiang. However, the latter was referred to a distinct genus, *Cymatophora**, by MELL (1942) based on his examination of the male genitalia. The former, *hoenei*, was originally mentioned as a close relative of *S. flammifera*. Judging from the description of the pattern of forewing given by SICK, I think it is a member of *Neotogaria* though I exclude this species in the present paper.

Acknowledgments

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* Probably in the sense of HOULBERT (1921), and not *Cymatophora* HÜBNER, [1812], Geometridae.

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摘 要

サイトウトガリバの再記載と近縁種について (吉本 浩)

Neotogaria saitonis MATSUMURA, 1931, サイトウトガリバは、台湾中部の眉原より新属新種として記載され、次いで埔里からも記録されたが (MATSUMURA, 1933), 少ないものらしくその後はほとんど得られていないようである。幸い私は、大阪府立大学昆虫学教室の田部達也氏の御厚意によって、同氏が台中縣梨山で採集された本種 1 匹を調べることができたので、交尾器形態を含めて本種を再記載し、またこの機会に中国南部からインド東北部にかけて分布する数種を属 *Neotogaria* に移した。

Neotogaria MATSUMURA, 1933. (*Neotogaria* MATSUMURA, 1931, は属の記載を伴わず不適格)

中型からやや大型 (開長 40-50 mm) の種を含む。外観は属 *Tethea* のある種に似るが、前翅外縁が強く波状を呈すること、頭額に円錐状の毛瘤と、これをおおう形の屋根状の毛塊をもつこと、また腹部 3-6 節の背面に冠毛を発達させることなどで、*Tethea* 並びに他の属から区別される。

成虫は晩秋または早春に出現する。台湾のサイトウトガリバが得難いのも出現期が早春に限られるためと思われる。

本報では次の 5 種をこの属に含めることとしたが、♂交尾器の種ごとの差異は僅かで、将来一部にシノニム関係が見い出されるかもしれない。

Neotogaria saitonis MATSUMURA, 1931. サイトウトガリバ [台湾 (中部山地)]

Neotogaria galema (SWINHOE, 1894), **comb. nov.** [インド (アッサム)]

Neotogaria flammifera (HOULBERT, 1921), **comb. nov.** [中国 (雲南)]

Neotogaria anguligera (HAMPSON, [1893]), **comb. nov.** [インド (アッサム)]

Neotogaria curvata (SICK, 1941), **comb. nov.** [中国 (浙江・福建・湖南・広東)]

なお、SICK (1941) は *flammifera* に近縁なものとして *Spilobasis hoenei* SICK を中国雲南省より記載しており、記載文より判断すると *Neotogaria* の一員と考えられるが、本報ではその扱いを保留した。